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ABSTRACT

Eight reading specialists and seven classroom teachers in Washington, D.C., taught the STARTER/101 reading program to 98 elementary school children in 1969-70. The children were chosen because they had experienced considerable difficulty in learning to read. The program, designed as a beginning reading program for urban children, consists of workbooks promoting individual work with the occasional help of a reader (teacher, tutor, etc) and can be used with individuals or with groups. Results of this study showed mean gains of 6.6 months on the Wide Range Achievement Test and similar gains on the Botel Word Opposites Test, on the informal reading inventory (Sheldon Series), and on the Illinois Test of Psycholinguistic Abilities, Auditory Association subtest. Reports of teachers and children were favorable, indicating the effectiveness and the appropriateness of STARTER/101. Recommendations were made for extension and further study of the program. Tables are included. (MS)

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REPORT ON THE STARTER/101 PILOT PROJECT IN THE READING CENTER OF THE D.C. PUBLIC SCHOOLS

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by

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Since a primary purpose for this evaluative study was to obtain information about the author's STARTER/101 program for teaching reading to non-readers, the author warmly thanks the specialists and teachers who used the program, gathered the data, and offered many constructive suggestions for program revision.

The Reading Center specialists who used STARTER/101 for this study were:

Mrs. Olga Biddiex
Mrs. Helen Cope
Mrs. Marie DeBruhl
Mrs. Arabelle Finney
Mrs. Chandelle Harris
Mrs. Franklin Ramirez
Mrs. Evelyn Reynolds
Mrs. Vivian Turner
Mrs. Barbara Wells

The teachers who used the program were: Mrs. Eddie Caul, Mr. Franklyn Cohen, Mrs. Judith Kreisberg, Mrs. Louise Moore, Mrs. Patricia Scales, Mrs. Greta Segre, and Mrs. Lue Jean Shaw. Miss Elayne Butwinick of the Sharpe Health School and Mr. David Volk at the Cleveland Elementary School also used the STARTER/101 program with their classes. Their results, not available at the time of this writing, will be reported later.

Mrs. Kay Lumley, Director of the Reading Center, was responsible for granting permission for the study to be undertaken. Mrs. Eva Lofty, Assistant Director of the Center, ably coordinated the project effort during the year. Mrs. Mae Porter, Acting Director of the Center during the latter part of the project, was also involved and helpful.

Colleagues who offered support and suggestions throughout were Dr. H. Russell Cort, Jr., Mrs. Naomi Henderson, Miss Margaret Mattis, Miss Cheryl Jones, Mrs. Prema Simon, Mrs. Margaret Clarke, and Mrs. Ann Keohane. The author deeply appreciates the assistance of Mrs. Carol Potter in preparing this report, and the help of The Washington School of Psychiatry in providing facilities for the study.

STARTER/101 as a program is the product of several years of development, and has benefited from the support and suggestions of a great many people. The author gratefully extends thanks to all those who have helped in the development, evaluation, and revision of STARTER/101.

FOREWORD

This report describes the results of a pilot program in which the author's STARTER/101 structured reading program for non-readers was used between November, 1969 and May, 1970, under the auspices of the Reading Center of the D.C. Public Schools.

Eight reading specialists and seven teachers used the program with a total of 122 children in nine different elementary schools. Ninety-eight of these received pre and post test measures, and constitute the sample on which this report is based.

The children participating in the program were either non-readers or, in a few cases, several years behind in reading. On the pre-post reading test administered to the children (Wide Range Achievement Test in Reading), 94% showed a measurable gain in reading. On the Botel Word Opposites test, a post-measure only, 66% of the children were at or beyond the 1^2 grade level. On an Informal Reading Inventory (Sheldon), 56% of the children were at or above the first grade level; all had moved out of the Readiness level.

The children's performances on all reading tests used in this study were consistently confirmed by observation and classroom performance, and indicated that most of the children did indeed learn the rudiments of reading, and that they were able to use these skills in a variety of reading situations, including test-taking, book reading, and reading in the classroom.

This evaluation study was funded solely by the author, in order that major questions concerning the general usefulness and effectiveness of STARTER/101 could be answered. Second order questions, which could not be encompassed in the present study should be pursued when additional funds are available. Further study will be necessary to answer the questions, "For what kinds of children, with what kinds of teachers, and under what conditions, is STARTER/101 most(and least) effective?",and "Were the children who learned to read then able to sustain and continue making progress in school?"

The aim of the STARTER/101 program was to give children a firm grounding in the rudiments, and the joy, of reading. The present evaluation indicates that it clearly can do that. What will be built upon that foundation remains to be seen.

Report on the STARTER/101

Pilot Project in the Reading Center

Of the D.C. Public Schools

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June, 1970

STARTER/101 is a newly developed, structured reading program written by Dr. Ann O'Keefe of the Educational Studies Department, the Washington School of Psychiatry, Washington, D.C. The program is intended for children between the ages of six and twelve who have encountered, or are expected to encounter, problems in learning to read. It is a sequential program that was designed to:

- be fun for children to use
- be relatively easy and satisfying for teachers to use
- include whatever readiness skills are necessary to help children learn to read
- make good use of children's existing strengths
- present material to be learned in a systematically and gradually more challenging manner, such that:
    - specific skills to be learned are introduced one at a time
    - the new skill that is mastered is combined with previously learned skills, and
    - the new skill is immediately practiced, in conjunction with familiar material, in a way that is challenging and interesting to the child.

The aim of STARTER/101 is to teach children to recognize, sound and print individual letters and combinations of letters, and to read words, phrases, sentences, and simple stories. While the program's first words are phonetically consistent (words such as up and top), later in the program a large number of "sight" words such as two and beautiful are taught.

During the summer of 1969 Dr. O'Keefe asked Mrs. Kay Lumley, Director of the Reading Center for the D.C. Public Schools, if the STARTER/101 materials could be used by several reading specialists with children on a pilot basis, so that the program could undergo a preliminary evaluation.

Mrs. Lumley agreed, and appointed Mrs. Eva Lofty, Assistant Director of the Reading Center, as coordinator of the program. Mrs. Lofty invited nine specialists to attend an orientation briefing given by Dr. O'Keefe, and to decide if they would like to use the program with a small number of non-reading children. All nine agreed, and early in November, 1969, they began teaching reading, using the STARTER/101 program. By February, 1970, 18 teachers were using the materials with 146 children in grades 1 - 6, in 11 D.C. public schools.

This is a report of the results of the use of the material with the 98 children for whom both pre and post test results were obtained. These children were taught by specialists or by regular classroom teachers working in cooperation with specialists.[1]

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[1] Results of the program used by one teacher at Sharpe Health School, and by one teacher on his own at Cleveland, were not available at the time of this writing. These results will be reported in a later paper.

The Children

The original sample contained 122 children. Table A indicates reasons why 24 of these children did not receive post-tests.

Table A

Reasons Why 24 Children Were Not Post-Tested

Reasons for Lack of Post-Test	Number of Children
Moved out of school district	12
Absent at time of post-testing	5
Withdrawn by teacher as being too immature for instruction	5
Transferred to a special education class	1
No reason given	1
Total	24

Of the 98 children for whom pre and post measures were obtained, the average chronological age at the time of pre-test (usually November, 1969) was 8 years-8 months, with ages ranging from 5-10 to 12-10. The average I.Q. (Peabody Picture Vocabulary Test--Form A) was 85, with scores ranging between 58 and 141. There were 47 girls and 51 boys. The majority were in grades 1 - 3, but a few children were included from all elementary grade levels, as shown in Table B.

Table B

Distribution of Children by Grade in School

Grade	Number of Children
1	10
2	43
3	29
4	9
5	1
6	6
Total	98

Twenty-eight of the children (about 28%) had a documented history of severe non-educational problems, including physical, emotional, and social problems. An additional number of children also had problems that might be expected to interfere with school learning, but these problems were reported verbally, rather than formally. In general the children selected for inclusion in this pilot program were children who had several strikes against them, who had shown little or no school achievement, and for whom there was a very guarded prognosis in terms of school progress in general, and reading achievement in particular.

The Tests

There were two pre-post measures, one pre-only measure, and two post-only measures, as listed in Table C.

Table C

Pre-Only, Post-Only, and Pre-and-Post Measures

Pre Only	Post Only	Pre and Post
Peabody Picture Vocabulary (PPVT) Form A	Botel Word Opposites Test Informal Reading Inventory (IRI)--(Pre data also available for 49 children	Wide Range Achievement Test (WRAT)--Reading Illinois Test of Psycholinguistic Abilities (ITPA)--Auditory Assoc.

The main reading pre-post measure was the Wide Range Achievement Test (WRAT) in Reading, and the two post-only reading tests were the Botel Word Opposites Test, and the Informal Reading Inventory (IRI) based on the Sheldon Series. Since 49 of the 98 children had been tested on the IRI by the specialists before beginning STARTER/101, these scores are also included in

this report. Of the 49, 16 were at the Readiness Level, and only one at the Primer (1^1) Level, with the remainder at the PP^1, PP^2, or PP^3 Level.* The Auditory Association subtest of the revised Illinois Test of Psycholinguistic Abilities was given pre and post, and the PPVT was given within the first few weeks of the program, as an estimate of general scholastic aptitude.

The WRAT was selected as a measure because it yields scores below the first grade level, and thus provides a finely graded, quantified index of pre-reading achievement (for example, letter discrimination and letter naming) even if the child is unable to read a single word. In fact, only one child in the sample was unable to obtain a score on the WRAT pre-test. This was an important consideration for the study, since if many children were unable to exceed the test "floor," no precise measure of reading gains made during the program would be possible. Moreover, while the WRAT emphasizes word recognition only, rather than comprehension, this was not viewed as a serious drawback for the STARTER/101 study. It was anticipated that post scores would be well under the fourth-grade level, and for the most part within the first and second grades (a prediction which was correct). The need for a specific measure of reading comprehension was judged to be less critical at these reading levels than at later ones. Thus while a comprehension measure was seen as desirable for the higher levels, the WRAT alone was judged to be a meaningful measure of reading skills at those levels actually attained by the majority of the children in the present study. The Botel Word Opposites was added at the end of the year as a comprehension measure. For the Botel, the child reads a word and then selects an opposite from a choice of four (e.g., big: bed, <u>little</u>, chair, boy).

The IRI was included as a post measure because: 1) it is routinely given by reading specialists and thus yields a score that is familiar and readily interpreted;

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*PP^1 is Pre-primer, first level, and is the lowest reading level. PP^3 precedes the first reader, or Primer. The IRI levels, then, are sequenced as follows: Readiness, PP^1, PP^2, PP^3, Primer, 1^2, 2^1, 2^2, 3^1, 3^2.

and 2) it estimates the child's instructional level, answering the question, "For what level in a basal series is the child ready?"

The ITPA Auditory Association subtest is an oral test. It requires the child verbally to complete an analogy such as: "Ice cream is cold; soup is ____." This test requires no reading ability at all, and yields a Language Age score. Earlier research with a program similar to STARTER/101 had suggested that children who do not actually learn to read or master any of the measurable rudiments of reading by the end of a program often do make significant gains in spoken language. The ITPA subtest was intended to identify such children.

All testing was administered by the reading specialists, who have had training in tests and measurements, and who routinely test children and evaluate their own teaching programs for the Reading Center.

The Specialists and Teachers

Eight specialists used the program from beginning (November, 1969) to end (May, 1970). (A ninth specialist was reassigned, and turned her class of six sixth graders over to an experienced teacher in the building.) In addition to the specialists, a total of seven regular classroom teachers (including the teacher mentioned above) participated in the study. The specialists taught a total of 67[2] children; the teachers taught 31.[2]

Table D presents a summary description of the eight specialists and seven teachers by age, educational level, teaching experience, and previous participation in a special pilot project.

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[2]This figure refers only to children who had both pre and post tests. In fact, more children than are represented by this figure were included in the pilot program.

Table D

Characteristics of Reading Specialists and Teachers
Using STARTER/101

Age	Number of Specialists	Number of Teachers
20-24		1
25-29		2
30-34	1	1
35-39	2	
40-44	1	2
45-49	2	1
50-54	1	
Over 55	1	
Educational Level		
B.A.	2	7
M.A.	2	
M.A. plus	4	
Teaching Experience in Years		
2		2
4		1
5		1
9	1	
11-15	3	2
18-25	4	1
Had Previous Experience Teaching In a Special Pilot Project		
Project READ	3	
Basal Progressive Choice	2	
Merrill Linguistics	1	
Special Junior Primary Project		1

In general, the specialists using the STARTER/101 materials were somewhat older and more experienced than the teachers and had been involved in other pilot programs. All specialists reported their opinion that the program could be successfully used by regular classroom teachers, if a short training program were provided. All also offered the opinion that the STARTER program, despite

its simplicity, was by no means an "easy out," but requires much effort and planning on the part of the teacher, just as any program does.[3]

The Materials

STARTER/101 is a set of 14 books. The earliest books are short and simple, to permit successful completion by the children. Each book follows the same general teaching pattern, designed to familiarize the children (as well as the teacher) with what to expect. In general, Books 1 - 11 introduce single letters and their sounds. At each step, previous learning is consolidated as new learning is presented. For example, Book 1 teaches U and P, with the resulting words up and pup. Book 3 teaches T and M, with resulting words (when combined with previously learned U and P of Book 1, and C and O of Book 2), such as top, mop, pot, cot, Mom and Tom.

A few digraphs such as sh and th, and vowel variants such as the u in pull, as well as a few sight words such as a, I, and the are taught in the early books. However for the most part, these more complicated rudiments of reading skill are left for Books 12 - 14, where the concept of "long vowel, silent e" is taught, as well as a large number of consonant and vowel digraphs, and sight words. Usually digraphs were selected for inclusion in the program if they appeared among the 220 words of the Dolch list of most frequently used words. By the end of the program, it was intended that the children would have learned nearly all of the 220 Dolch words, as well as the rudimentary reading skills. These include: at least two vowel sounds for every vowel; all major consonant sounds; and the most frequently used digraphs. See Attachment A for a more detailed description of the STARTER/101 program.

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[3]However, one of the regular classroom teachers, all of whose children only attained Book 4 by the end of the year, said she would not want to use STARTER again in a classroom situation. Another teacher, who taught 12- and 13-year-old sixth graders, said that while she liked the materials and thought they were helpful, she would want to select carefully children who would not find the program too "babyish" for them.

Program Implementation

All specialists and teachers used STARTER/101 on a small-group or individual basis. Teachers (including specialists) varied their approach to the program. Most began working with a small group, keeping the group together. After teacher and children had worked through the first few books, teachers began to encourage children to work on their own, at their own pace. Frequently one teacher would have several children working in different books. Teachers worked with the children in sessions of approximately 30 minutes, but here there was a wide range. On occasion, some sessions were as short as seven minutes, or as long as 70 minutes.

The specialists were fairly careful about keeping daily records of time spent using the program, but some teachers were unable to keep the counts. Table E summarizes the number of sessions and number of hours of instruction offered by each specialist and teacher, and the final books completed by his or her students. Obviously the number of books that was completed was largely dependent on the problems and initial reading retardation of the children, but it can be seen that in this study, the children who had the least time of instruction using STARTER/101, and who made the least progress through the books, were taught by teachers, not specialists.

Table E

Number of Sessions and Hours Offered by Personnel,
And Number of Books Completed

Specialists Code	# Sessions[a] Offered	# Hours[a] Offered	Books Completed By Post Test
02	44	22	5, 8
06	71	37.6	6, 9
06[4]	17	10.5	11
07	69	25	7, 9, 12
08	59	30.6	12, 14
08[4]	32	17	13
10	95	54.6	14
11	96	45	8, 9
16	70	48	6, 11, 14
18	101	50	14
18[5]	58	28	14

[4] This specialist had a second group. The group began mid-year, in Book 6.
[5] This specialist also had a second group. The group began mid-year, in Book 9.
[a] Due to children's absences, few children actually attended the maximum number of sessions and hours offered by each specialist/teacher.

Table E (cont'd)

Teachers Code	# Sessions[a] Offered	# Hours[a] Offered	Books Completed By Post Test
01[6]	-	-	3
04[7]	91	33.3	9, 1[1]
05[7]	48	24	14
09[8]	24	5.5	9
12[6]	31	13.3	7
13[8]	-	-	3
14[8]	21	7.3	5

Results

Attachment B presents a summary listing of all test results from which the results reported here were derived.[9]

WRAT (Reading). The overall mean gain on the WRAT (Reading) for the 98 children was .66 years (6.6 months).[10] For the 67 children taught by reading specialists, the mean gain was .8 years (8 months), and for the 31 children taught by regular classroom teachers, the mean gain was .4 years (4 months). Of the 98 children, three showed a negative score change from the pre to the post test period, and three children showed no score change from the beginning to the end of the program. Table F shows a frequency distribution and polygon of WRAT (Reading) score changes.

Table F

I. Frequency Distribution of WRAT (Reading) Score Changes (N = 98)

WRAT Change in Months From Pre to Post Test	# of Children
-3	1
-1	2
0	3
1	6
2	8
3	6

[6]No records maintained.

[7]Figures for this teacher reflect time from mid-year (when children were in Book 6) to end.

[8]Records not fully maintained;figures probably low estimates of time offered.

[9]Results reported here are only partial, in the interest of providing immediate feedback on basic program results. Eventually more detailed analyses will be made.

[10]The scores are based on a ten-month academic year.

[a] See footnote a on page 9.

I. Frequency Distribution, WRAT-Reading (continued)

WRAT Change in Months From Pre to Post Test	# of Children
4	13
5	8
6	12
7	10
8	2
9	7
10	1
11	1
12	4
13	4
14	2
15	1
16	1
17	2
18	2
21	1
29	1
Total	98

II. Frequency Polygon of WRAT (Reading) Score Changes (N = 98)

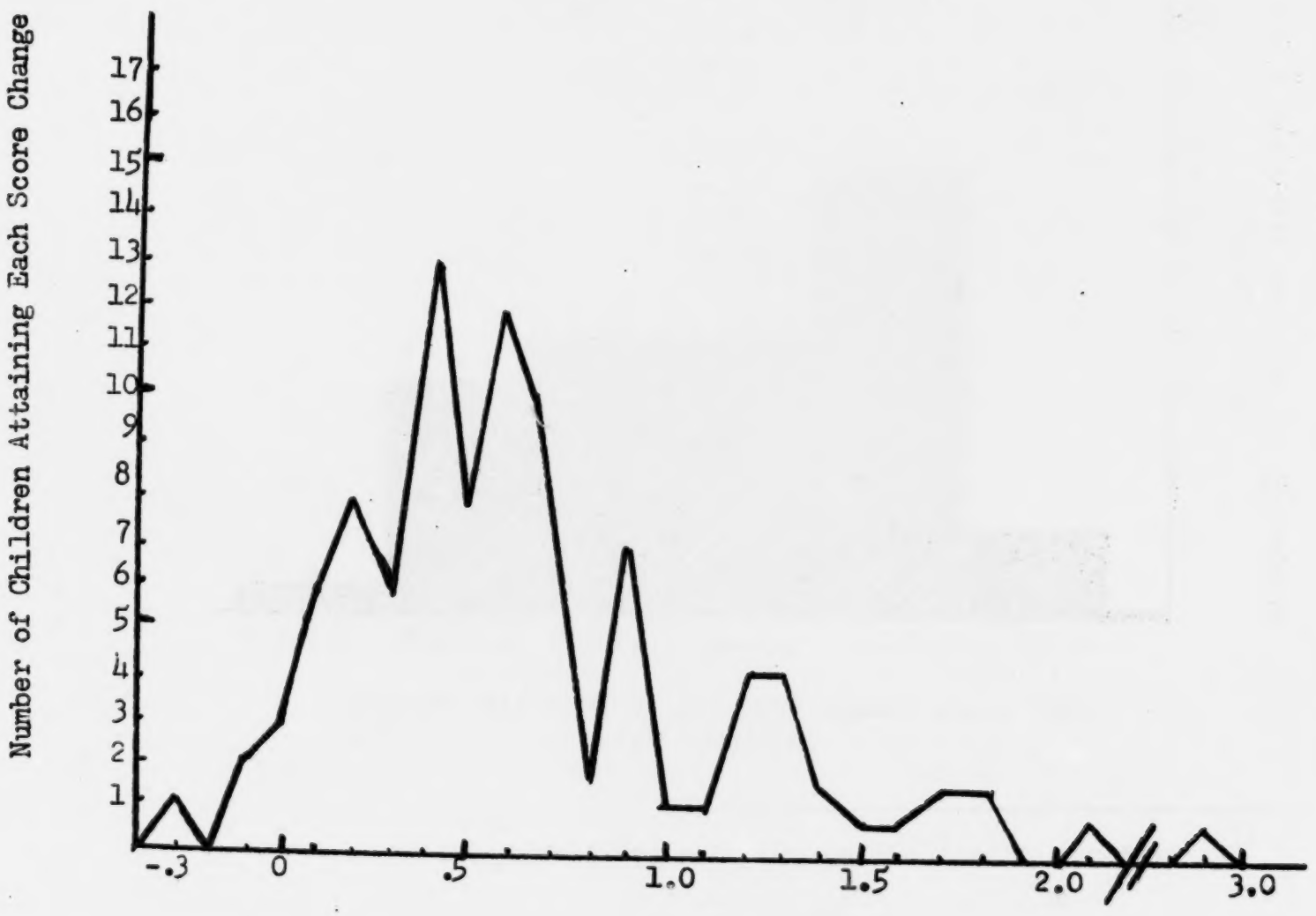


Table G shows the percentage of children (based on figures in Table F) whose WRAT score changes fell into selected ranges.

Table G

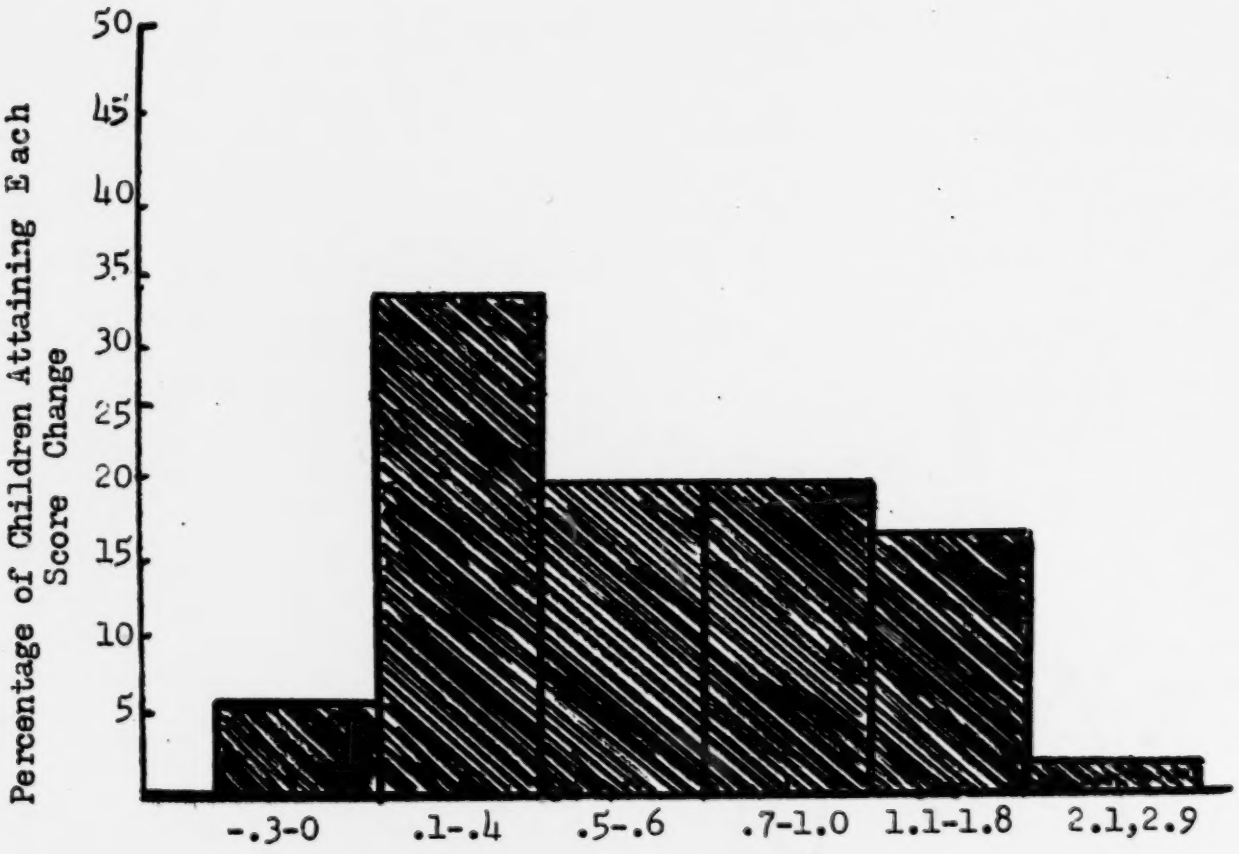
Percentage of Children With Various WRAT Score Changes

I. Table of Percentages

Change in Months	% of Children
-3 to 0	6
1 to 4	34
5 to 6	20
7 to 10	20
11 to 18	17
21 to 29	2
Total	99[11]

59%

II. Histogram



[11] Percentages do not add to 100, due to rounding.

During the 7 calendar months of the project, then, 94% of the children showed some measurable progress on the **WRAT**, and 59% gained between 5 and 29 months (.5 and 2.9 school years) on that measure.

Botel Word Opposites Test. Table H shows the distribution of scores obtained on the Botel Word Opposites test at the end of the school year. It is interesting to note that many of the participating specialists felt that their children would be quite unable to perform at all on the Botel because of the difficulty of the test. However, only 14 children were really untestable. The 18 children who registered "Below 1^2" were able to function on the test, but scored fewer than seven of ten possible items correctly. (1^2, or Level A, is the lowest level of the Botel, and a score of 70% or better suggests that the child is at about the second half of first grade in reading.)

Table H

Distribution of Botel Word Opposites Test Scores, Post Only

Botel Word Opp. Score	# of Children
Untestable	14
No Data (Children Absent)	3
Below 1^2	18
1^2	24
2^1	16
2^2	4
3^1	9
3^2	6
4^1	4
Total	98

Many specialists gave the Botel to children in groups (all other tests were of necessity given on an individual basis). It was interesting to note that many children continued taking the test long after they were able to make correct responses. This, coupled with comments made by those who administered the test, was taken as some indication that the children did not find the test-taking situation threatening or distasteful. Indeed, some even seemed to enjoy it.

The IRI. The Sheldon IRI (Informal Reading Inventory) was administered to all children except seven who were absent at the time of testing. Table I shows the distribution of IRI scores obtained at the end of the schoolyear.

Table I

IRI Scores by Number and Percentage of Children, Post Only (N = 91)

IRI Grade Placement Level, Post	Number of Children	Percentage of Children (N=91)	
Readiness	0	0	
Pre-primer 1	17	18	
Pre-primer 2	15	16	
Pre-primer 3	6	7	
Primer (First Reader)	5	12	
1^2	16	9	
2^1	19	21	56%
2^2	8	9	
3^1	5	5	
Total Tested	91	97^{12}	
Absent: 7			

Fifty-six percent of the children tested on the IRI obtained scores which indicated they were ready for placement in a first grade reader (P, or 1^1) or above. No children were at the Readiness level.

As noted earlier, there were 49 children for whom IRI scores had also been obtained at the beginning of the program. Table J shows the distribution of IRI placement scores for these 49 children, on both a pre and a post basis.

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[12]Percentage does not equal 100, due to rounding.

Table J

IRI Placement Scores by Number of Children, Pre and Post (N = 49)

I. Frequency Distribution

IRI Placement Level	PRE: Number of Children	POST: Number of Children
Readiness	16	0
Pre-primer 1	6	7
Pre-primer 2	18	5
Pre-primer 3	8	5
Primer (First Reader)	1	0
1^2	0	14
2^1	0	11
2^2	0	6
3^1	0	1
Total	49	49

II. Frequency Polygon

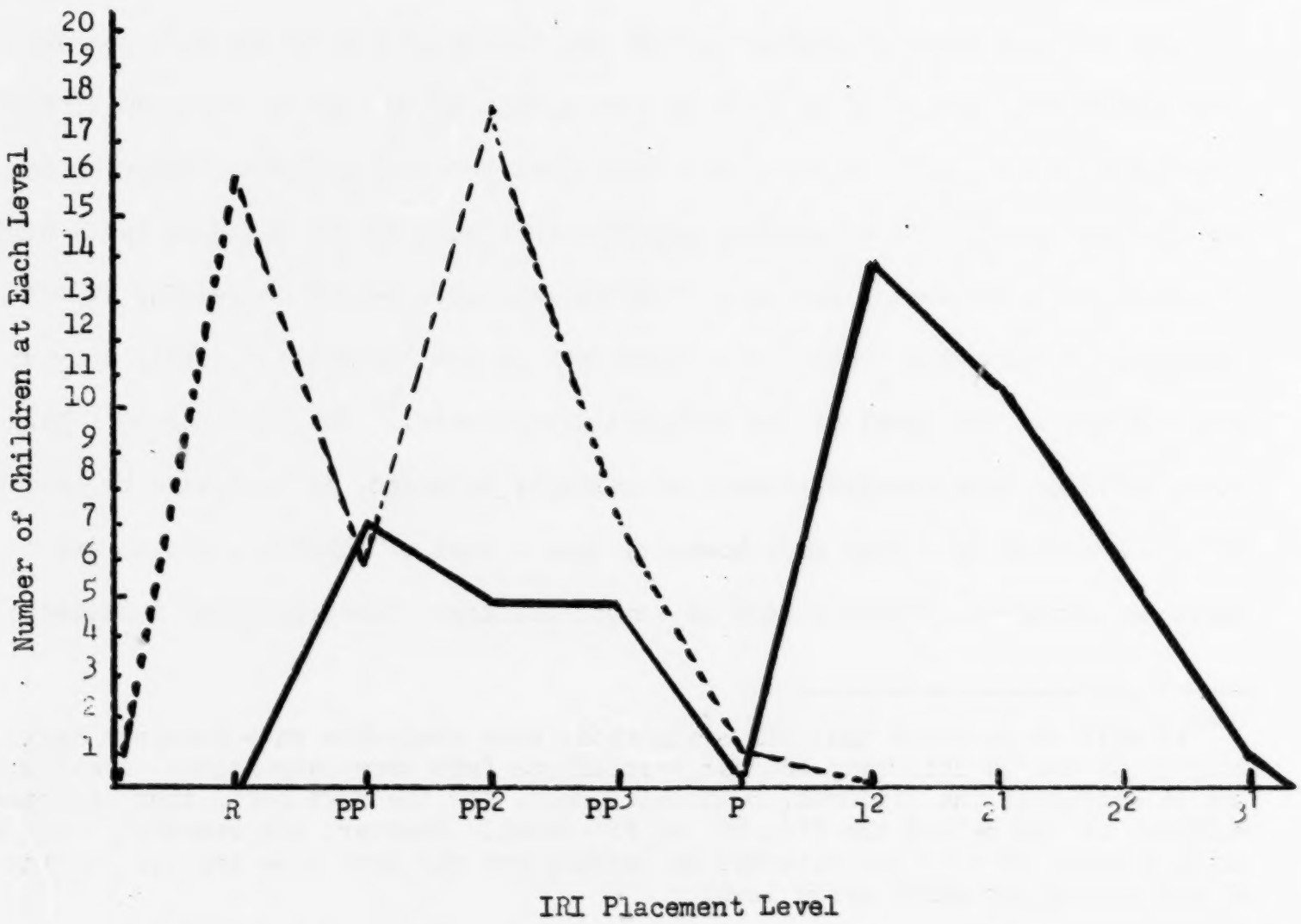

Table I shows that at the start, all but one of these 49 children were reading below the primer (first reader) level. On the post test, 32 children were reading at or above the 1^2 level. Further, all of the 16 children who were at the Reading Level in the beginning, had advanced beyond that level by the time of the post test.

The ITPA Subtest. The mean Auditory Association Subtest Language Age (LA) at the start for 93 children who had both a pre and a post ITPA subtest, was 6 years-3 months, as compared with a mean chronological age of 8 years-8 months. The mean LA at the end was 6 years-8 months. The mean gain in months of language age, from pre to post test period, was approximately 5 months. Twenty-one children showed losses when measured at the end of the year, 65 showed gains, and 7 showed no score change.

Discussion

All reading measures indicated that the vast majority of the children who used STARTER/101 were able to read to some extent by the end of the school year (See Tables F -J , pp. 10-15). This consistent trend of positive change scores on the reading measures is especially notable since most of the children had a history of school non-achievement or school failure, and were behind in reading at the beginning of the year. They were non-readers at the "readiness" level, or very poor readers at the level of the earliest pre-primers.[13] Yet, for the most part these children were not classifiable as mentally retarded, as indicated by the mean PPVT IQ score of 85. They did, however, show a host of physical, social and emotional problems, often related to school failure. These problems included

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[13] It will be recalled that IRI evaluations were available on a pre-post basis for only 49 of the 98 children; however specialists (who were responsible, usually, for the selection of the children, maintained that, for the most part, they selected only children at (or below) the PP^3, PP^2 or PP^1 level. However, one remedial class of sixth graders (N = 6) was retarded in reading but did have five initial reading scores at the second and third grade level

excessive absenteeism, general immaturity, severe home problems, and physical problems which had even brought some children to various D.C. clinics and hospitals for physical and neurological evaluation. In short, the children using STARTER/101 generally were functional non-readers with a history of poor school progress, and a poor prognosis with respect to learning to read.

It is unfortunate that there were no control or comparison groups for this project; more massive testing and data collection than that undertaken was simply beyond the resources of the present study. However, the data reported in full in Attachment B will permit the D.C. School system to make some comparative estimates between the results obtained with STARTER/101, and the results obtained with other approaches used with similar children.

Research findings, such as those reported in the Bond and Dykstra study,[14] clearly indicate that no one method or approach is best for all children, and that the appropriate question is, "What approaches are most effective with what kinds of children, taught by what kinds of teachers, under what conditions?" This report recognizes the vital importance of that question, but does not attempt to answer it, at this time, for STARTER/101. This year's program was intended to yield a preliminary estimate of the general value of the program, and to see if the program was able, under any conditions, to meet its goal. This goal may be defined as helping non-reading children learn and use the rudimentary reading skills necessary to read simple, first- and second-grade level written materials, and thereby be able to participate in and benefit from regular classroom instruction and experiences. There was ample evidence both from tests and observations, that STARTER/101 can assist teachers help many "high risk"

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[14] Bond, G.L. and Dykstra, R. Coordinating Center for First-Grade Reading Instruction Programs, Office of Education, Project No. X-001, Contract No. OE-5-10-264, February, 1967.

non-reading children accomplish this goal during a single school year--in fact, in less than 55 hours distributed over a 7 month period (November 1969-May 1970; see Table E, p. 9). Not only did 56% of the children score at or above the primer (first reader) level on an Informal Reading Inventory given at the end of the program (Table I, p. 14); in addition, teachers commented that by the completion of Books 9 or 10, many children were beginning to branch out into reading regular books, such as the I Can Read Books, the Dolch easy readers, and various Dr. Seuss books, and into other school programs such as the Sullivan READ books and whatever basal reading instruction series was used in their classrooms. Numerous verbal reports were made by the classroom teachers to the specialists that the children were behaving better, participating more, and seeming to enjoy life in the classroom more than in their pre-STARTER days. Further study is required to document such by-products of success in learning to read; it is enough here to mention that such by-products appear to have existed in many cases.

Teaching personnel for the most part found the program simple to use on the one hand, but hard work on the other. Of the seven specialists and four teachers for whom program evaluation questionnaires had been received at the time of this writing, nine said they felt comfortable using the materials by the end of Book 4; one teacher did not comment on that question (Question 15) and another states, ". . . I never actually depended on the manual."

One person commented verbally that if she had a choice, she would rather have access to STARTER/101 than have a teacher-aide, because STARTER/101 provided realistic planning, schedules and activities for the children. But there seemed no doubt that effective use of the program required additional work on the part of the teacher/specialist. This work took the form of providing appropriate supplementary reading books, teaching frequent review lessons, devising games and activities to strengthen auditory discrimination, making word and letter games, making extra practice pages for the children, and making word and picture cards with STARTER/101 words and pictures.

There is considerable evidence that three of the regular classroom teachers would have benefited from additional orientation to the program and supportive guidance while using it. Certainly the fact that no children progressed beyond Book 3 and 5 for two teachers suggests that they were not making the most effective use of the material; why they were not, is of course open to question. In any event, since four teachers (two with little, and two with considerable experience) were able to use the program routinely and consistently in their classroom, there is evidence that the program can be used in regular classrooms, as well as by specialists in a small-group setting. It should be noted that one specialist trained a small core of superior readers in the upper elementary grades of her school, to act as tutors for children in Books 1-5; she found that these tutors could be quite helpful. One teacher also commented that older (reading) children had been able, at times, to help younger children. Since the author has trained high school seniors to use the program effectively,[15] the question is not, "Can classroom teachers in general use STARTER/101 effectively?" but rather, "What kind and how much training and support do what kinds of classroom teachers need, to effectively and efficiently use STARTER/101 under various conditions?"

The discussion would be remiss without some mention of the ITPA Subtest pre-post scores, which reflected a loss in language facility for 21 children. The ITPA Auditory Association Language Age scores were difficult to interpret. An earlier study[16] using similar materials to teach reading to young disadvantaged children had indicated that language age gains were quite large following even a small "dose" of the program. Indeed, specialists and teachers alike commented

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[15] O'Keefe, Ruth Ann, Cort, H.R. Jr., Keohane, Ann, and Mattis, Margaret A. "The Development of a Reading Curriculum for the Junior Village School" (A Report prepared for the Director, Dept. of Public Welfare, D.C. Government, under D.P.W. N.S. Contract No. 68163) Washington School of Psychiatry, August, 1969, p. 40.

[16] Ibid., p. 48. " . . . the mean gain was 10 months. Thirteen of the 16 children's scores (on the Auditory Association subtest of the ITPA) reflected gains with seven improving 14 months or more during the course of the 2-½ months tutoring program."

repeatedly on the usefulness of STARTER/101 as a tool for language development. Thus, the finding that 21 children had language age score losses came as a surprise, in the face of the informal evidence that the children became much more verbal and adept at school-type verbal language, and in the face of the formal, documented evidence of consistent reading gains. Moreover, a logical analysis of the STARTER/101 methods and materials suggests that the program would increase verbal facility, since it has a strong verbal language component built in. An explanation for the language age losses may be sought in a possible decrease in test-taking motivation for some of these 21 children at the time of the second testing. Whatever the explanation, this author finds it difficult to believe that any child actually knew less lnaguage at the end of this program--or at the end of any other program for that matter, and she is inclined to leave these language losses as uninterpreted, and perhaps uninterpretable.

Summary and Conclusions

Eight reading specialists and seven regular classroom teachers taught the STARTER/101 reading program to 67 and 31 children, respectively, during the 1969-70 school year. The 98 children were in Grades 1-6, with most coming from Grades 1-3. All children selected for inclusion in the program were children who were experiencing severe problems in learning to read. Nearly all were functional non-readers. Their mean CA at time of pre-testing was 8 years-8 months, and their mean PPVT IQ was 85.

The overall mean gain in reading achievement as measured by the Wide Range Achievement Test in Reading was 6.6 months; for the specialists alone it was 8 months, and for the teachers alone it was 4 months.

On the Botel Word Opposites Test, used only as a post-test measure, all except 14 children scored in or above the first-grade level. Sixty-six percent scored at the 1^2 level or above.

On the IRI (Sheldon series), 56% of the children scored at or above the Primer (First Reader) level. None scored at the Readiness level. In a sample of 49 children for whom IRI pre-tests were available, the pre-tests showed that all except one (98%) were below the Primer level (one was at the Primer level). The post-tests for these 49 children showed that 32 (65%) were at or above the 1^2 level, with only 17 (35%) at various pre-primer levels. Thus, for these 49 children, 90% were reading below the Primer level on the pre-test, but only 35% were at pre-primer levels on the post-test.

On the ITPA, Auditory Association Subtest, children made gains, but 21 children showed some decrease in measured language facility. The mean gain in language age as measured by this subtest was five months.

Depending on their schedules, specialists offered a total of between 22 and 55 hours of instruction using STARTER/101. Some teachers did not keep records consistently, but there is evidence that some used the material for as much as a total of 33 hours, and others, less than ten hours.

There were notable and consistent reports by teachers that the children, for the most part, enjoyed the program, and that the teachers felt comfortable using it. All specialists said they would like to continue or expand their STARTER/101 program next year; two teachers had reservations about continuing to use the program under present circumstances. Observations by the program's author indicated that, for the most part, the program was being used quite satisfactorily. Additional research is necessary now to determine more precisely for what kinds of children (and teachers) and under what conditions, STARTER/101 is most appropriate and effective in helping children learn to read.

Addendum/Recommendation

Arrangements have recently been made with Silver Burdett Company to publish STARTER/101. Plans call for an experimental version of the program (a 10-book revision of the program described in this report and used by the Reading Center) to be used in a sample of school systems throughout the country during the 1970-71 school year, with a commercial edition to be available for the 1971-72 school year. Silver Burdett has expressed its interest in having the D.C. Schools participate next year, and has indicated its willingness to furnish a limited number of copies for further evaluation purposes.[17]

The author recommends that the D.C. Public School system continue and expand its use of STARTER/101 next year, both through the Reading Center, and through its Department of Instruction, for expanded use in regular first, second and third grades--especially in second and third grades where children have demonstrated a problem in learning to read. The program has already gotten off to a good start, and fifteen specialists and teachers in the D.C. system have developed a capability for using the materials. Thirteen of these people have specifically indicated their desire to use STARTER/101 next year, and expressions of interest from other specialists and teachers have been received by the author and this year's participants.

Further evaluation, both by the D.C. School system and by the publishers, could perhaps shed more light on some of the questions raised in this report, and provide valuable information with respect to this approach to teaching reading to non-readers.

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[17]For anyone not in the evaluation study, the company will make the program available on a cost basis of about $10 per set, if orders are placed before July 1, 1970. Arrangements can be made by contacting:

Product Manager for Language Arts
Silver Burdett Company
Morristown, New Jersey 07960 Phone: 201-538-0400

Attachment A

A Description of STARTER/101: A Structured Beginning Reading Program for Children

STARTER/101 was developed as a beginning reading program geared primarily to first, second and third grade urban children. The underlying assumptions of the program are (1) that there are already good and appropriate teaching materials available for urban children, whether the educator leans towards programmed materials, structured materials, basal readers, or a language experience approach, and (2) that so-called "disadvantaged" children have the potential to master all basic skills and concepts that are required for reasonable and adequate reading ability and enjoyment. The goal of the new program, STARTER/101, is to prepare these children - many of whom come to school with a rich background of skills, but skills which unfortunately are often unlike those needed for academic success - to learn to use, enjoy, and benefit from some of the excellent materials available - available but out of reach until certain basic skills have been accepted and mastered.

The program takes into account three large problem areas. First, STARTER/101 is designed for easy use by teachers. Our experience has been that, too often, beautifully designed and conceptually excellent materials are simply not feasible for actual use by teachers; they make too many demands upon them. Many parts of the program have been tried by teachers, and in fact high school seniors were able to use the system effectively as tutors with young disadvantaged children, after a brief training period.

Second, the program is designed to be interesting to the young children for whom it is intended. It is largely based on sounds and words familiar to the child. Further, the program assures familiarity by developing the children's spoken language prior to the introduction of printed language (reading). The content of this particular program is specifically geared to young children, both in word usage and in illustrations. Many appealing cartoons, as well as pictures of Negro and white children and adults are used to help teach the skills and concepts covered in the program. Thus, within the framework of the program, an underlying concern is to make the materials and activities fun and interesting, from the point of view of the youngsters using it.

Third, the program takes into account the fact that many children do not remain in one school for an entire school year. Many beginning reading programs are developed as continuous two or three-year programs, but the fact is that, in our mobile society, many children are unable to stay in one school that long. STARTER/101 should help equip youngsters to adapt to subsequent reading programs, even if they must leave the program before completing it. To this end we have carefully examined several different types of reading programs (including programmed and basal) and have specifically included the teaching of a number of skills which will help the child move more smoothly into other programs.

Program Goals

Upon <u>completion</u> of the <u>total</u> program (approximately 4-8 school months of daily 30-45 minute sessions, depending on a number of factors) the child will be able to:

- recognize, sound and print all letters, both upper and lower case
- recognize, sound and print combinations of letters
- recognize, sound and print the most commonly used English letter-compounds*
- read and, to some extent, spell words containing the linguistic elements included in the program
- read simple phrases, sentences and stories using the linguistic and phonetic elements taught
- read sight words drawn from the Dolch basic word list and other selected word lists (these will be words such as "you" and "beautiful" -- words whose spelling is not easily derivable from the taught linguistic skills, but words that are frequently used in materials written for young children)

Upon completion of approximately the <u>first half</u> of the program, the child will be able to:

- recognize, print and give at least one sound** for each letter (upper and lower case)
- recognize, sound and print the digraphs "sh", "all", "ee", "th", and "qu"
- read words, phrases, sentences and stories composed of all elements taught
- read more than 150 of the 220 Dolch words, in meaningful contexts

<u>Program Process</u>

The program is essentially the product of a task analysis of the problem of learning to read. The program delineates and sequences literally hundreds of objectives which if accomplished, should help a child develop the ability to read simple written material. In the process by which these objectives are achieved, learning proceeds step-by-step. The child learns very little new material at a time, and he then combines or consolidates the new learning with previously learned or review activities. Although the process of learning is in many ways similar to that of other structured programs, the underlying philosophy, content and sequence of the objectives of this program are quite different from those of other programs.

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* The most commonly used letter compounds are determined according to whether or not they appear in the most frequently used words on standard word lists, such as the Dolch basic word list. Thus, for example, "ow" and "ea" are taught because of Dolch words such as "down" and "eat", but "oi" is not specifically taught because there is no "most frequent" word that uses the "oi" compound. Operationally, then, standard word lists were used to delimit the content of the new program.

** Short vowel sounds are used. Additionally, there are five letters for which more than one sound is learned during the first half of the program: e, u, y, c, and g.

e as in m<u>e</u>	u as in <u>u</u>p	y as in happ<u>y</u>	c as in <u>c</u>at	g as in <u>g</u>ot
e as in <u>e</u>ver	u as in p<u>u</u>t	y as in m<u>y</u>	c as in <u>c</u>ity	g as in <u>g</u>em
		y as in <u>y</u>es		

The first of four major steps in STARTER/101's teaching-learning process is the Language Development phase, which makes sure that the child can speak, understand and use the specific words he will be reading. (This step is given heaviest emphasis during the earlier part of our program, but is included to some extent throughout the program.)

The second step is the Perceptual-Motor phase, where the child learns to recognize, sound (not name) and print one new letter in both its upper and lower case form. (The first four letters in the program - U, P, C and O - were selected primarily because their upper and lower case forms are nearly identical except for size. Pilot testing indicated that the U, C, and O shapes can be taught so that, despite their similarity in visual shape, they are readily learned.) The major considerations in sequencing letters - considerations which were given different weights at different times - were the letters' inter-letter visual and auditory dissimilarity, their intra-letter upper and lower case similarity (the first four letters, as mentioned above, were deliberately chosen to eliminate the upper-lower case problem for the children in the beginning), and the number of relevant and useful words they make.

The third step, Combining, is one in which the child learns to combine the new letter with previously learned letters. In most cases these "combinations" are meaningless and thereby provide no meaning or contextual clues; the child must figure out these tasks solely on the basis of his sound-symbol association skill. A major consideration in selecting combinations was that they occur in the words.[1] Thus, "word parts" (or letter combinations) which occur frequently in words were emphasized - "word parts", such as <u>um</u>, <u>ist</u>, <u>op</u>, <u>est</u>, etc.

The final major step is Reading Development, where the child incorporates the letters and letter-combinations into words -- words the meaning of which he learned (or at least had called to his attention) during the first step, Language Development. In Reading Development he progresses from words to phrases to sentences and, during the latter part of the program, to simple stories.

After the child has mastered a particular section of the program (usually teaching one letter, or digraph, or sight word), he moves to the next, where the process begins all over again, with the child cycling back to spoken language and moving from spoken to written language in an orderly and carefully sequenced manner, with materials especially designed to appeal to him.

<u>Program Materials</u>

The original program consisted of 14 workbooks (1021 pages) and a teacher's manual for Books 1-6. The revised program[2] will have 10 workbooks (864 pages) and a complete manual. The large number of workbooks is needed because the pages are designed to be attractive and <u>uncluttered</u>.

The workbooks are designed for a great deal of independent work, but the nature of the program requires the assistance of a reader (teacher, aide, tutor, etc.) periodically throughout the program. The main educational function of this teacher is to provide the sounds associated with the symbols, but in fact, we believe a warm, responsive, constructive adult leader is vital in the educational lives of young children. Many children become discouraged while trying to learn to read, and the teacher can provide a vital service to the child by setting up reasonable guidelines, rules, and educational goals, and supplying the encouragement many children do not receive.

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[1] For supportive rationale, see Gibson, Eleanor J., "Learning to Read," <u>Science</u>, 148: 1066 - 1072 (May 21, 1965)

[2] To be published by Silver Burdett Publishing Company, Morristown, N.J. 07960. Experimental edition: September 1970; Commercial edition: September 1971

The program can be used on an individual, small group, or independent basis. A Combination approach, with some individual work, some small group work, some total class work, and some independent work, has been used by most teachers and is probably effective in most situations, permitting most rapid progress by most children.

ATTACHMENT B

TEST RESULTS FOR INDIVIDUAL CHILDREN TAUGHT BY SPECIALISTS AND TEACHERS

I. SPECIALISTS

Code	Age in Months at Pretest	PPVT IQ	Sex	Grade	WRAT-RGL[a] Post	WRAT-RGL[a] Pre	WRAT-RGL[a] Ch	IRI[b] Post	IRI[b] Pre	Botel Word Opposites[b] Post	ITPA-A.A.[c] Post	ITPA-A.A.[c] Pre	ITPA-A.A.[c] Ch	Book Ended In
0202	87	91	M	2	1.7	K-8	.9	PP^2	-	1^2	72	67	5	5
0203	93	76	F	2	1.5	1.2	.3	-	-	1^2-	-	59	-	5
0204	128	62-	M	2	1.9	K-7	1.2	PP^2	-	1^2-	65	67	-2	8
Mean							.8 yr							
Maximum Hours of Instruction Offered: 22 hours, in 44 sessions.														
0601	98	93	F	3	1.5	PK-5	1.7	PP^1	-	1^2-	72	65	7	9
0603	84	91	F	2	1.3	N-5-	2.1+	PP^2	-	1^2-	63	55	8	6
Mean							1.9 yr							
Maximum Hours of Instruction Offered: 38 hours, in 71 sessions.														
0621	133	88	F	4	2.2	2.1	.1	2^2	-	2^1	110	106	4	11*
0622	132	131	M	4	2.7	2.1	.6	3^1	-	3^2	121	121	0	11*
0623	133	79	F	4	2.5	2.3	.2	3^1	-	2^1	99	84	15	11*
Mean							.3 yr							
Maximum Hours of Instruction Offered: 11 hours, in 17 sessions														
*Began program in Book 6														
0701	79	108	F	1	1.9	K-2	1.7	PP^2	-	Untest.	84	63	21	9
0702	130	65	M	5	3.1	1.8	1.3	P_1	-	2^1	92	85	7	12
0705	72	100	M	1	1.3	K-7	.6	PP^1	-	Untest.	81	59	22	7
0706	118	-	F	4	3.0	1.2	1.8	P_1	-	1^2-	74	Untest.	-	12
0707	70	82	M	1	1.4	K-3	1.1	PP^1	-	Untest.	72	59	13	7
Mean							1.3 yr							
Maximum Hours of Instruction Offered: 25 hours, in 69 sessions														

[a] Scores and score changes in years and months. Thus a change of 1.5 equals one and a half school year's progress.
[b] Scores reported by grade year and semester; e.g. 1^2 is the second semester of the first year.
[c] Scores signify Language Age in months.

NOTE: A minus (-) after a number means "below." E.G., 62- and 1^2- mean "Below 62" and "Below first grade, second semester."

SEE P. B-5 for further help in using these tables.

Code	Age in Months at Pretest	PPVT IQ	Sex	Grade	WRAT-RGL Post	WRAT-RGL Pre	WRAT-RGL Ch	IRI Post	IRI Pre	Botel-WO Post	ITPA-A.A. Post	ITPA-A.A. Pre	ITPA-A.A. Ch	Book Ended In
0801	114	62	F	3	2.3	1.6	.7	P	-	1^2	72	59	13	12
0802	96	85	M	3	2.9	1.6	1.3	2^1	-	1^2	87	95	-8	14
0803	114	71	F	3	3.5	2.1	1.4	2^1	-	2^1	84	69	15	14
0804	100	90	F	3	3.6	2.3	1.3	2^1	-	3^2	95	69	26	14
Mean							1.2 yr							
Maximum Hours of Instruction Offered: 31 hours, in 59 sessions														
0821	134	83	F	4	3.0	2.3	.7	2^1	-	2^1	92	92	0	13*
0822	123	-	M	4	3.6	3.9	-.3	2^2	-	3^1	84	74	10	13*
0823	137	66	F	4	3.1	2.5	.6	2^1	-	3^1	95	110	-15	13*
0824	116	-	F	4	5.0	4.1	.9	3^1	-	3^2	95	87	8	13*
0825	132	73	M	4	2.8	2.6	.2	2^1	-	3^1	81	92	-9	13*
Mean							.4 yr							
Maximum Hours of Instruction Offered: 17 hours, in 32 sessions														
*Began program in Book 6														
1001	100	135	M	3	2.1	1.5	.6	1^2	R	2^1_1	99	113	-14	14
1002	110	100	F	3	2.2	1.5	.7	1^2	R	2^1	110	81	29	14
1003	101	95	M	3	2.1	1.6	.5	1^2	R	1^2	78	-	-	14
1004	106	111	M	3	2.5	1.8	.7	2^2	PP^1	3^1	131	121	10	14
1005	111	91	M	3	1.6	1.3	.3	PP^1	R	1^2	84	81	3	14
Mean							.56 yr							
Maximum Hours of Instruction Offered: 54 hours, in 92 sessions														
1101	98	100	F	2	1.3	K-6	.7	PP^3	R	Untest.	84	84	0	9
1102	96	69	F	3	1.2	K-6	.6	PP^1	R	1^2-	61	63	-2	9
1103	116	79	M	2	1.3	K-9	.4	PP^2	R	1^2-	95	92	3	9
1104	98	85	M	2	1.1	K-6	.5	PP^1	R	1^2-	84	78	6	8
1105	97	72	F	2	1.0	K-6	.4	PP^2	R	Untest.	49	59	-10	9
Mean							.52 yr							
Maximum Hours of Instruction Offered: 45 hours, in 96 sessions														
1601	97	121	F	3	2.8	1.6	1.2	2^1	-	1^2	84	78	6	14
1602	115	84	F	3	2.1	1.6	.5	1^2	-	1^2	102	95	7	14
1603	89	79	F	2	2.3	K-4	2.9	PP^3	-	1^2-	67	65	2	11
1604	96	90	F	3	2.2	1.5	.7	P	-	1^2-	74	78	-4	14
1605	88	89	M	1	K-9	K-5	.4	PP^1	-	Untest.	67	-	-	6
Mean							1.1 yr							
Maximum Hours of Instruction Offered: 48 hours, in 70 sessions														

Code	Age in Months at Pretest	PPVT IQ	Sex	Grade	WRAT-RGL Post	WRAT-RGL Pre	WRAT-RGL Ch	IRI Post	IRI Pre	Botel-WO Post	ITPA-A.A. Post	ITPA-A.A. Pre	ITPA-A.A. Ch	Book Ended In
1801	96	90	M	2	1.5	1.0	.5	PP^1	PP^1	1^2-	78	63	15	14
1802	100	-	M	2	1.6	1.0	.6	PP^3	PP^1	1^2	74	-	-	14
1803	91	65	F	2	1.6	1.2	.4	1^2	PP^2	1^2	69	49	20	14
1804	85	79	M	2	1.9	1.5	.4	2^1_3	PP^2	1^2	67	59	8	14
1805	100	83	F	2	1.4	1.3	.1	PP^3	PP^1	1^2-	84	72	12	14
1809	86	79	M	2	1.6	1.1	.5	PP^1	PP^1	-	72	65	7	14
Mean							.41 yr							
Maximum Hours of Instruction Offered: 50 hours, in 101 sessions														
1821	-	83	M	2	1.9	1.6	.3	1^2	PP^2	2^1	99	81	18	14*
1822	94	83	M	2	2.6	1.8	.8	2^1	PP^2	2^2	81	67	14	14*
1823	105	73	F	2	3.3	2.4	.9	2^2	PP^3	2^2	67	67	0	14*
1824	90	79	M	2	2.6	1.7	.9	1^2	PP^2	2^2	78	61	17	14*
1825	89	71	F	2	2.3	1.8	.5	2^1	PP^2	1^2	55	53	2	14*
1826	89	104	F	2	1.8	1.6	.2	1^2	PP^2	1^2-	69	65	4	14*
1827	89	79	F	2	3.6	2.0	1.6	PP^3	PP^3	2^2	81	67	14	14*
1828	99	72	F	2	3.8	2.3	1.5	2^1	PP^3	3^1	72	72	0	14*
1829	94	112	M	2	3.5	1.7	1.8	2^2	PP^3	3^1	99	72	27	14*
1830	108	76	F	2	3.3	2.3	1.0	2^2	PP^3	3^1	74	78	-4	14*
1831	95	78	M	2	2.0	1.6	.4	1^2	PP^2	1^2	78	69	9	14*
1832	96	64	F	2	3.0	2.1	.9	2^2	PP^2	2^1	69	57	12	14*
1833	98	97	M	2	2.4	1.7	.7	2^1	PP^2	1^2	84	69	15	14*
1834	108	70	M	2	2.5	1.8	.7	2^1	PP^1	2^1	78	72	6	14*
1835	100	87	M	2	2.2	1.8	.4	2^1	PP^3	1^2	61	55	6	14*
1836	95	76	F	2	2.4	2.0	.4	1^2	PP^3	1^2-	65	65	0	14*
1837	87	141	M	2	1.9	1.6	.3	2^1	PP^2	1^2	78	65	13	14*
1838	89	85	M	2	2.5	1.9	.6	1^2	PP^2	1^2	74	67	7	14*
1839	97	-	M	2	3.3	2.0	1.3	1^2	PP^2	2^1	81	72	9	14*
1841	90	81	M	2	2.8	1.9	.9	1^2	PP^2	2^1	72	67	5	14*
1842	88	87	M	2	3.5	2.3	1.2	2^1	PP^2	3^1	74	61	13	14*
1843	87	85	M	2	1.7	1.6	.1	1^2	PP^2	1^2	78	63	15	14*
1844	86	95	F	2	2.3	1.5	.8	2^2	PP^2	2^1	81	72	9	14*
1846	108	-	M	2	1.6	1.5	.1	1^2	PP^2	1^2	72	55	17	14*
Mean							.76 yr							

Maximum Hours of Instruction Offered: 28 hours, in 58 sessions

*Began Program in Book 9

II. TEACHERS

Code	Age in Months at Pretest	PPVT IQ	Sex	Grade	WRAT-RGL Post	WRAT-RGL Pre	WRAT-RGL Ch	IRI Post	IRI Pre	Botel-WO Post	ITPA-A.A. Post	ITPA-A.A. Pre	ITPA-A.A. Ch	Book Ended In
0101	115	70	F	3	1.5	1.1	.4	PP^2	-	1^2	72	74	-2	3
0102	112	71	M	3	1.5	1.5	0.0	PP^2	-	1^2-	67	72	-5	3
0103	99	95	M	3	1.7	1.6	.1	PP^2	-	-	81	69	12	3
0104	108	58	F	3	1.6	1.5	.1	PP^2	-	-	69	65	4	3
0105	108	91	F	3	1.5	1.5	0.0	PP^2	-	1^2	84	78	6	3
Mean							.18 yr							
Maximum Hours of Instruction Offered: Not reported														
0401	128	75	M	3	1.7	1.5	.2	PP^2_1	R	1^2_1	72	81	-9	11
0403	115	110	M	3	2.5	1.9	.6	2^1_1	PP^3	2^2_2	106	106	0	11
0404	118	76	M	3	1.9	1.5	.4	PP^2	R	1^2-	63	78	-15	11
0405	115	100	F	3	1.9	1.5	.4	PP^3_1	R	1^2	92	81	11	11
0406	111	81	F	3	1.7	1.5	.2	2^1	R	Untest.	63	-	-	9
Mean							.36 yr							
Maximum Hours of Instruction Offered: 32 hours, in 87 sessions														
0501	144	76	F	6	4.7	3.5	1.2	-	-	4^1_2	84	81	3	14
0503	143	95	F	6	3.9	2.5	1.4	-	-	3^2_1	92	95	-3	14
0504	154	75	F	6	3.6	2.9	.7	-	-	4^1_2	102	87	15	14
0505	153	71	F	6	4.4	3.8	.6	-	-	3^1_1	87	84	3	14
0506	153	76	F	6	4.5	3.6	.9	-	-	4^1_1	81	84	-3	14
0507	153	80	F	6	2.1	1.9	.2	-	-	4^1	95	87	8	14
Mean							.83 yr							
Maximum Hours of Instruction Offered: 20 hours, in 40 sessions														
0901	115	91	F	3	2.9	2.5	.4	3^1_2	-	3^1	95	95	0	9
0902	112	101	M	3	2.0	2.1	-.1	PP^2_1	-	1^2	87	95	-8	9
0903	106	74	M	3	2.9	2.3	.6	2^1	-	2^1	74	92	-18	9
0904	114	84	M	3	2.1	1.7	.4	P_2	-	1^2	92	87	5	9
0905	109	81	M	3	2.0	2.1	-.1	1^2	-	2^1	87	81	6	9
Mean							.24 yr							
Maximum Hours of Instruction Offered: 5.5 hours, in 24 sessions														
1202	101	81	M	2	1.5	K-9	.6	PP^1	R	Untest.	99	72	27	7
1204	99	86	M	2	1.3	K-7	.6	PP^1	R	1^2-	74	69	5	7
1205	110	76	F	2	1.5	1.2	.3	PP^2	R	1^2-	55	57	-2	7
Means							.5 yr							
Maximum Hours of Instruction Offered: 12 hours, in 29 sessions														

Code	Age in Months at Pretest	PPVT IQ	Sex	Grade	WRAT-RGL Post	WRAT-RGL Pre	WRAT-RGL Ch	IRI Post	IRI Pre	Botel-MO Post	ITPA-A.A. Post	ITPA-A.A. Pre	ITPA-A.A. Ch	Book Ended In
1301	79	93	M	1	1.3	K-8	.5	PP[1]	-	Untest.	69	63	6	3
1302	79	93	M	1	1.3	K-8	.5	PP[1]	-	Untest.	67	65	2	3
1303	86	96	M	1	1.1	K-8	.3	PP[1]	-	Untest.	72	65	7	3
1304	76	77	M	1	Pk-2	N-8	.2	PP[1]	-	Untest.	47	47	0	3
1306	76	97	F	1	1.3	K-6	.7	PP[1]	-	Untest.	72	74	-2	3
1307	75	81	M	1	K-3	K-1	.2	PP[1]	-	Untest.	47	55	-8	3
Means							.4 yr							
Maximum Hours of Instruction Offered: Not reported														
1403	85	96	F	2	2.3	2.3	0	3[1]	P	3[2]	78	67	11	5
Means							0 yr							
Maximum Hours of Instruction Offered: 6 hours, in 17 sessions														

GUIDE TO TABLES IN ATTACHMENT B

WRAT-RGL = Wide Range Achievement Test in Reading, Reading Grade Level
IRI = Informal Reading Inventory (Sheldon series)
ITPA-AA = Illinois Test of Psycholinguistic Abilities, Auditory Association subtest
Code is a number representing each child
WRAT scores such as K-8, Pk-5, and N- indicate Kindergarten, 8th month; Pre-kindergarten, 5th month; and below pre-kindergarten.
IRI scores are explained on page 5 of the report.
Untest. = Untestable
A dash (-) where data should be indicates that no data were reported.
The mean change score for each group (class) are given, for the WRAT.